

CLAIMS

- 1) Method for assessing *in vitro* the predisposition of a subject to develop cardiovascular pathologies, characterized in that the identity of the nucleotide corresponding to position 436 of seq IDN1 (COX-2 gene PROMOTER is established on a sample of genomic DNA of said subject).
- 2) Method according to claim 1, where the genomic DNA is extracted from cells of such subject, derived from blood samples, saliva, biopsies, urine, human tissue.
- 3) Method according to claim 2, where said cardiovascular pathologies are caused by or associated with rupture of an atherosclerotic plaque.
- 4) Method according to claims 1-3, where such cardiovascular pathologies are coronaropathies, pathologies of carotid arteries, myocardial infarction, angina pectoris, acute coronary syndromes, myocardial revascularization by means of coronary by-pass or angioplasty, stroke, transient ischemic attack (TIA), peripheral arteriopathy, trombophylic syndromes.
- 5) Method according to claim 4, where such assessment is made by one of the following techniques: sequencing, endonuclease digestion with restriction enzymes, selective hybridization with oligonucleotides specific for polymorphism at position -765 of the human COX-2 gene promotor, methodology of single strand conformational polymorphism (SSCP), DGGE, Fluorescence assisted mismatch analysis (FAMA), heteroduplex analysis, Real Time PCR.
- 6) Method according to claim 5, wherein said assessment is made by endonuclease digestion with restriction enzymes.
- 7) Method according to claim 6, comprising the following steps:
 - extraction of genomic DNA from a biological sample of the subject,
 - amplification by means of Polymerase Chain Reaction with oligonucleotides or primers suitable for amplification of a DNA fragment comprising position -765,
 - enzymatic digestion of such amplified fragment with a restriction enzyme selected from: Fau I and Aci I
 - electrophoretic separation of the restriction mixture comprising the restriction fragments or of the undigested amplified fragment, or of both,

- analysis of the restriction profile generated after visualization of DNA.
- 8) Method according to claim 7, characterized in that the amplification is carried out with oligonucleotides having sequences at least partially identical to sequences ID NO 3 and ID NO 4 and the amplified fragment is digested with the restriction enzyme Fau I.
- 9) Method according to claim 8, characterized in that the amplification is carried out with oligonucleotides having sequence SEQ. ID NO 3 and 4.
- 10) Method according to claims 1-9, characterized in that the presence of a cytosine (C) at position 436 of SEQ IDN1, in at least one DNA allele of such subject, indicates a lower risk to predisposition to cardiovascular diseases than the risk associated to the presence of a guanosine (G) in position 436 on both alleles.
- 11) Kit in order to carry out the method according to claims 1-10.
- 12) Kit according to claim 11, characterized for comprising at least one of the following oligonucleotides: an oligonucleotide comprising at least 10 consecutive nucleotides of seq ID NO 3, an oligonucleotide comprising at least 10 consecutive nucleotides of seq ID NO 4 and optionally one restriction enzyme selected from: Fau I and Aci I.
- 13) Kit according to claim 12, comprising the oligonucleotide with sequence ID NO 3 and the oligonucleotide with sequence ID NO 4, the Fau I restriction enzyme and optionally one molecular weight DNA standard.
- 14) Use of the genotyping of nucleotide at position 436 of seq IDN1 (COX-2 gene promotor) for the preparation of a prognostic tests for a cardiovascular pathology selected from: coronaropathies, pathologies of carotid arteries, myocardial infarction, angina pectoris, acute coronary syndromes, myocardial revascularization by means of coronary by-pass or angioplasty, stroke, transient ischemic attack (TIA), peripheral arteriopathy, trombophilic syndromes.
- 15) Use of the genotypization of nucleotide at position 436 of seq IDN1 (COX-2 gene promotor) to prepare diagnostic tests for the sensitivity to therapy with non steroidal anti-inflammatory drugs (FANS).